

What is claimed is:

1. A microscopic image capture apparatus,
comprising:

5 a sample image area extraction unit extracting
an area including a sample image from an image
captured as an entire sample;

a height coordinate acquisition position
setting unit automatically setting a plurality of
10 positions in an XY direction in which a height
coordinate Z is acquired from a sample image area
extracted by said sample image area extraction
unit;

a coordinate read unit reading a height
15 coordinate of a focal point position in the
position in the XY direction set by said height
coordinate acquisition position setting unit;

a focal point adjusted position computation
unit computing an adjusted position of a focal
20 point in an arbitrary position in a sample image
area using height coordinate data read by said
coordinate read unit at the position set by said
height coordinate acquisition position setting
unit; and

25 a sample travel unit transferring a height of

a sample to an adjusted focal position computed by a focal point adjusted position computation unit when the sample is horizontally traveled.

5 2. The apparatus according to claim 1, wherein
 said coordinate read unit performs autofocus
processing with a sample horizontally traveled to a
set position, and reads a height position of said
sample travel unit after completion of autofocus
10 processing as a height coordinate.

3. The apparatus according to claim 1, wherein
 said height coordinate acquisition position
setting unit sets a position of a grid point
15 including a sample image in grid points of sections
obtained by dividing a sample image area at
predetermined intervals in grid form as a position
in which a height coordinate is obtained.

20 4. A microscopic image capture apparatus,
comprising:

 a sample image area extraction unit extracting
an area including a sample image from an image
captured as an entire sample; and

25 an autofocus unit automatically detecting a

focal point position while performing horizontal travel of a sample, wherein

said autofocus unit starts detecting the focal point position during horizontal travel to a position including a sample image extracted by said sample image area extraction unit, and stops detecting a focal point position during horizontal travel to a position including no sample image.

10 5. A microscopic image capture apparatus which forms an entire image of high resolution by dividing into small sections an entire image of a sample captured under low magnification, and capturing the small sections under high magnification, comprising:

15 a height coordinate acquisition position setting unit setting a plurality of positions in which a height coordinate is acquired from among grid points including sample images at grid points of a grid having small sections;

a coordinate read unit reading a height coordinate of a focal point position in horizontal coordinates of a sample under high magnification; and

25 a focal point adjusted position computation

unit computing a height position in an arbitrary position of a small section using height coordinate data read by said coordinate read unit at a grid point set by said height coordinate acquisition
5 position setting unit.

6. A microscopic image capture apparatus which forms an entire image of high resolution by dividing into small sections an entire image
10 captured under low magnification, and capturing the small sections under high magnification, comprising:

a sample image section extraction unit extracting a small section including a sample image
15 from among a plurality of small sections; and

an autofocus unit automatically detecting a focal point position when a sample image changes, wherein

said autofocus unit starts detecting a focal
20 point position when said unit horizontally travels to a small section including the sample image extracted by said sample image section extraction unit, and stops detecting a focal point position when said unit horizontally travels to a small
25 section including no sample image, thereby

capturing an image under high magnification.

7. The apparatus according to claim 6, wherein
when a first small section has no sample at a
5 center, said autofocus unit travels to a small
section which is closest to the first small section
and has a sample at a center, and performs
autofocus processing.

10 8. A focal point position adjusting method for
use with a microscopic image capture apparatus,
comprising:

extracting an area including a sample image
from an image captured as an entire sample;

15 starting an automatic operation of detecting a
focal point position with horizontal travel of a
sample when horizontal travel is performed to a
position including an extracted sample image; and

stopping an automatic operation of detecting a
20 focal point position when horizontal travel is
performed to a position including no sample image.

9. A microscopic image capturing method for use
with a microscopic image capture apparatus,
25 comprising:

extracting an area including a sample image
from an image captured as an entire sample;

setting a plurality of horizontal positions in
which a height coordinate Z is acquired from an
5 extracted sample image area;

reading a height coordinate which is a focal
point position in the set horizontal position;

computing an adjusted position of a focal
point in an arbitrary position in a sample image
10 area using the set horizontal position and height
coordinate data read in the horizontal position;
and

transferring a height of a sample to the
computed adjusted focal position when a sample is
15 horizontally traveled.

10. A microscopic image capturing method,
comprising:

capturing an image of wide-angle view of the
20 entire observing slide,

extracting an area including a sample image
from the image of wide-angle view;

capturing an image of high magnification while
adjusting a focal point position by setting real
25 time autofocus processing to be used when it is

determined that a sample has a concave and convex surface or samples are scattered in a view according to the presence/absence of information about a sample image obtained in a process of
5 extracting the area including the sample image; and
capturing an image of high magnification by setting real time autofocus processing not to be used when it is determined that a sample has a smooth surface and spreads a view according to the
10 presence/absence of information about a sample image obtained in a process of extracting the area including the sample image.

11. The method according to claim 10, wherein
15 when the real time autofocus processing is set to be used, an image of high magnification is captured while a focal point position is adjusted in the focal point position adjusting method according to claim 8, and when the real time
20 autofocus processing is set not to be used, an image of high magnification is captured while a focal point position is adjusted in the focal point position adjusting method according to claim 9.